

CERTIFICATE

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Type of invention: Utility Model

Title of the invention: A Wristwatch Capable of Storing and Transmitting Data

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A Wristwatch Capable of Storing and Transmitting Data

Technical Field

This utility model relates to a wristwatch, and in particular, to a wristwatch capable of storing and transmitting data of computers.

Background of the Utility Model

A wristwatch, as a timing instrument, is always an indispensable commodity for people in their daily work and life. A wristwatch usually comprises: a time indicating component which is the kernel component of the wristwatch and is used for indicating time; a watch case for housing and protecting the time indicating component; a watch band for fixing the wristwatch to people's wrist and for adorning purpose. With the development of science and technology, people integrate other devices into the wristwatch to make full use of the wristwatch as a portable commodity. For example, in a patent application numbered "CN01104642.2" and titled "a telephone wristwatch with a SIM card", a wristwatch combined with communication technology is disclosed. But, there is still no portable wristwatch combined with computer technology up to now, despite of the wide spreading and continuous development of computer technology. On the other hand, to meet the desires of data exchange, various types of mobile memory devices are present in the market, such as mobile hard disks, portable memory devices with a USB connectors, etc.. Data exchange can be realized between computers by utilizing these products. For example, data from one computer is downloaded and stored to a portable memory device with a USB connector quickly, and then the data in the memory device is transmitted to another computer through the USB connector. Generally, the data stored in these products with Flash Memory can be downloaded rapidly and stored for a long time, for some instance, more than ten years. However, the mobile hard disk is not portable, and the existing portable memory device with a USB connector has to be equipped with a long cable, which connects with the USB connector of the product on its one end, and with the USB port of the computer on the other end. It often causes a lot of inconvenience since a consumer has to always carry the cable with him, and data transmission and storage becomes impossible if the cable is lost. Therefore, it is desirable to develop a portable memory device integrated with daily commodity like a wristwatch, so that the USB product needs not to be carried additionally.

Summary of the Utility Model

The main object of the present utility model is to provide a portable wristwatch which can store and transmit data rapidly. The internal structure of the watch case of the wristwatch of the present utility model is well sealed, so that the electricity property of the internal elements can be ensured, and the elements for storing and transmitting data of computers can be secured and protected, while the appearance of the wristwatch remains concise and natural.

The above object of the present utility model is achieved by the following technical scheme. A wristwatch according to the present utility model comprises a timing indicating component, a watch case, and a watch band for fixing the wristwatch to people's wrist, characterized in that, said wristwatch further comprises a circuit board assembly, a USB connector and a connection cable; said circuit board assembly is installed inside the watch case and comprises a circuit board, on which are installed a Flash Memory and a CPU; said connection cable consists of data leads and power leads, which are used to connect with the circuit board and the USB connector; the

USB connector is located outside the watch case, said connection cable extends out of the watch case from an opening hole at the seam between the watch case and the watch band, a water proof means is provided around the opening hole; a housing means for housing and fixing the connection cable and the USB connector is provided on said watch band.

The advantages of the present utility model are as follows: since a Flash Memory device is integrated in the wristwatch, the wristwatch can be used to exchange, transmit and store data of computers rapidly at any time and any place, in addition to indicating time. Since the CPU and the Flash Memory are both installed inside the watch case, the volume and weight of the present utility model is similar to those of the traditional one, so that, the wristwatch of the present utility model is still convenient for carrying and using. Further more, since the housing and fixing means for the USB connector is installed on the watch band, the connection cable and the USB connector are not exposed outside, so that consumers will not feel any inconvenience when the wristwatch are carried and worn. Thus, consumers may possess a wristwatch capable of transmitting and storing data of computers, without carrying a memory device or a mobile hard disk additionally. As a timing product, the wristwatch is popular, and particularly, when it has some new functions. Hence, a wristwatch capable of storing and transmitting data must be a brand new option for consumers in the domestic and foreign markets, and it will provide utmost convenience for information exchange and communication in the modern society.

Brief Description of the Drawings

Fig. 1a is an overall schematic view of a wristwatch capable of storing and transmitting data according to embodiment I of the present utility model;

Fig. 1b is a schematic view of part I of the wristwatch shown in Fig. 1a;

Fig. 2 is the sectional schematic view of the body of the wristwatch shown in Fig. 1a;

Fig. 3 is the schematic view of the wristwatch shown in Fig. 1a with the case back removed;

Fig. 4 is the principle circuit diagram of the wristwatch shown in Fig. 1a;

Fig. 5 is the schematic view of the watch band of a wristwatch capable of storing and transmitting data according to the present utility model;

Fig. 6 is the schematic view of the wristwatch shown in Fig. 1a with the USB connector assembled;

Fig. 7 is the schematic view of the body of a wristwatch capable of storing and transmitting data according to embodiment III of the present utility model.

Detailed Description of the Preferred Embodiments

The present utility model will now be described in details by way of examples with reference to the accompanying drawings.

Embodiment I:

As shown in Fig.1a and Fig.1b, the wristwatch according to the present utility model comprises: a time indicating component for indicating time; a watch case 1 for housing and protecting the internal structure of the wristwatch; a watch band 2 for fixing the wristwatch to people's wrist and for adorning purpose; said wristwatch further comprises a Flash Memory and a CPU for storing and transmitting data. Said watch band 2 can be made of various materials, preferably plastics.

As shown in Fig. 1a, 1b, 2 and 3, inside the watch case 1 are installed a time indicating component and a circuit board assembly. The time indicating component includes a time movement 9, hands 91, and a time dial, etc.. Said time movement 9 is located behind the hands 91 and the time dial; said circuit board assembly includes a circuit board (PCB) 10, a flash

memory 101, and a CPU 102. Said circuit board 10 is located between the time movement 9 and the case back 11. Said case back 11 is located on the rearmost position, touching with people's wrist, and making an airtight effect for the wristwatch.

Said connection cable 3 are used to connect the circuit board 10 with the USB connector 4 which is usually placed inside the watch band 2. Said connection cable 3 is a four-core cable, two cores of which are data leads and the other two are power leads.

The principle electronic diagram is shown in Fig.4: The flash memory circuit includes a CPU, a flash memory, a power-supply converting circuit and a USB port. When the USB connector is connected to a computer, the computer will supply power to power-supply converting circuit immediately, thereby supply power to the CPU and the flash memory. The CPU is used to control data processing, reading, storing and exchanging; the Flash Memory is used to store data, the USB port is the interface for data exchange between the Flash Memory and the computer. Under the control instruction of the CPU, data of the Flash Memory can be exchanged with that of the computer via the USB port, so as to realize data reading, storing and exchanging.

Since the flash memory circuit is highly integrated, the USB connector 4 and the connection cable 3 are both installed outside the watch body, compared with a conventional wristwatch, the size of the watch body of the present utility model is hardly increased, therefore, the wristwatch of the present utility model can still be made compact and exquisite.

As shown in Fig. 1a, 1b, 2 and 3, the watch case has an opening hole 12, one end of the connection cable 3 connects with the circuit board 10, the other end of the connection cable 3 extends outside the watch body through the opening hole 12. The aperture of the opening hole 12 is greater than the diameter of the connection cable 3. For good looking, a cable cover 6 is placed above the connection cable 3 for enveloping the opening hole 12.

In order to keep the dryness of the electronic elements in the watch body, the outside part of the connection cable 3 should have excellent water proof property. The assembling steps of the wristwatch is as follows:

As shown in Fig. 2, at the outlet where the connection cable 3 extends outside, the watch case 1 has a step structure which consists of an inner step 1A and an outer step 1B. Firstly, place a water proof gasket 8 at the inner step 1A, wherein, said water proof gasket 8 is a circular ring and is made of deformable materials such as rubber and plastics etc; next, press a circular ring sheeting 7 to the outer step 1B, where the sheeting 7 can be made of the same materials as the watch case, such as ABC, plastics etc; then, make the sheeting 7 fused with the watch case 1 by ultrasonic, so that the sheeting 7 can be sealed closely around the outlet. During the fusing by ultrasonic, the water proof gasket 8 deforms and its internal diameter becomes smaller than the external diameter of the connection cable 3; make the connection cable 3 pass through the opening hole 12, the sheeting 7 and the water proof gasket 8 in turn, insert it inside the watch body, and then connect it to the circuit board 10. Inside the watch body, a stowing piece 17 is placed to fix the connection cable 3, so as to position the connection cable 3 stably.

As shown in Fig. 5, 6, the watch band 2 includes two sections 2A and 2B. In order to adapt to the fixing of the connection cable 3 and the USB connector 4, and for purposes of easy carrying and better looking, following improvements are made in the section 2A: the section 2A is undercutting according to the outline of the connection cable 3 and the USB connector 4, so as to form a big through hole; said through hole is divided into two segments, wherein, the longer segment 21 is made to house and closely lock the connection cable 3, the shorter segment 22 is formed to lodge the USB connector 4. Thus, the outside part of the connection cable 3 and the USB connector 4 are beset in the section 2A of the watch band. In order to further fix the USB connector 4, a tongue like positioning piece 23 is installed at the outside end of shorter segment 22 of the section 2A of the watch band. When the USB connector 4 is placed inside the groove of the shorter segment 22, the positioning piece 23 extends into the USB connector and locks it in

position, thus the USB connector will not sway randomly. On section 2A of the watch band, a rib 24 is installed for linking the two segments of the section 2A and securing the USB connector, so that, the section 2A of the watch band is not easy to be damaged, and the USB connector can be further secured. Said watch band 2 is made of PU material.

The wristwatch of the present utility model further includes a loop 5, which is designed to fit the size of the USB connector 4, and can be slid along the watch band 2. Several small pieces of projections 25 are provided on both sides of the watch band 2 at the segment 22, and correspondingly several small concaves are provided on the inner surface of the loop 5. When the small projections 25 are engaged with the small concaves, the loop 5 can be positioned precisely so as to clamp the USB connector 4 in the groove of segment 22. The assembling and fixing means for said connection cable 3 and the USB connector 4 includes the groove of longer segment 21, the groove of shorter segment 22, the loop 5, the tongue like positioning piece 23, the rib 24, the small projections 25 and the small concaves on the inner surface of the loop 5. As shown in Fig. 6, the steps for transmitting or storing data of computers are as follows: loose the loop 5 from the small projections 25 and move it to another position of the watch band 2, so that the USB connector 4 can get rid of the latch of the loop 5; then take out the USB four-core connection cable 3 and the USB connector 4 from the watch band 2, and plug the USB connector 4 into the corresponding USB port of a computer. When the above steps are finished, the required data such as, material, files and information, etc, can be copied and downloaded rapidly from the computer to the Flash Memory 101 by operations on the computer. All of the operations of copying, downloading, storage and transmission are completed under the control of CPU 102.

After the data loading is finished, pull the USB connector 4 out from the corresponding USB port of the computer, then press the USB four-core connection cable 3 into the groove of segment 21, put the USB connector 4 into the groove of segment 22, and wrap it with the loop 5, so as to avoid damage to the USB connection cable and the USB connector even when the wristwatch wearer is playing sports. The loop 5 is made of harder material than the watch band 2, such as ABS, PC plastics, so that to satisfy the functional requirements of the watch band.

As shown in Fig. 6, the upper part of the inner cavity of the loop 5 is an empty cavity 51. When the wristwatch is worn on one's wrist, the tail end of the section 2B of the watch band 2 can be inserted into the empty cavity 51, so as to adjust the degree of tightness of the wristwatch.

CPU, Flash Memory, USB four-core cable and USB connector can be chosen from the standard units, or they can be custom made according to special specs, so that they may be fit in the watch case easily, which increase the practicability of the present utility model. In addition, at the clearance of the seam between the watch case and the watch band from which the USB four-core cable extends, a sealing gasket (water proof gasket) and a press sheeting are used, so that the CPU, Flash Memory, the corresponded circuit and other elements in the watch case can be protected. Therefore, the wristwatch is watertight and moisture-resistant. Specially, the wristwatch according to the present utility model should be made of plastic. The material of watch case or watch band is ABS. The superduper insulating property of the ABS ensures the electric property of the wristwatch of the present utility model, so that mistakes can be avoided when data is loaded and transmitted through the CPU 1 and Flash Memory 2. Thus, the wristwatch of present utility model, which integrates the traditional wristwatch with a USB Flash Memory device, possesses functions of rapid data transmission and storage in addition to the timing function. The wristwatch of the present utility model has more functions than the traditional one, and is more convenient than an individual external hard disk or the existing portable storage product.

Embodiment II

Embodiment 2 is different from Embodiment 1 in that, the watch case 1 and the sheeting 7 are both made of metal, while the watch band 2 can be made of either metal or plastics. The

structures of the metal watch case 1 and the watch band 2 are the same as those in Embodiment 1. But the sealing structure of the seam from which the USB four-core cable extends is different from that in Embodiment 1. Since the sheeting 7 and the watch case 1 are made of metal, internal threads are provided inside the step 1B of the watch case 1 and external threads are provided on the outer circumference of the sheeting 7. When mounting the sheeting 7, the sheeting 7 is joined to the watch case 1 by screw so as to form an integrated body, thereby, the water proof gasket 8 is pressed and deformed to seal the wristwatch.

Embodiment III

Embodiment 3 relates to a wristwatch (digital watch) which displays time with a LCD (liquid crystal display screen). The structure of its time indicating component is different from the analog wristwatch of Embodiment 1, which causes differences on its whole structural layout. The IC of the LCD wristwatch is installed on the circuit board, and is combined with the LCD display screen to form the wristwatch. Thus, the circuit board of the wristwatch and the circuit board of the flash memory can be designed integrately. Compared with Embodiment 1, in addition to the flash memory and the CPU, a time-control IC for controlling the LCD to indicate time is further included in the circuit board assembly in Embodiment 3.

Fig. 7 is a schematic view of a digital watch. The watch consists of a watch case 1, a name plate 15, a liquid crystal display screen 14, a lens 13, a time-control IC 104, a sheeting 7, a USB connection cable 3, a cable cover 6, a water proof gasket 8, a stowing piece 17, a battery 103, a circuit board 10, a flash memory 101, a CPU 102, a conductor rubber 16, a case back 11.

The battery 103, circuit board 10, time-control IC 104, liquid crystal display screen 14 and name plate 15 constitute the time indicating component.

Said flash memory 101 and said CPU 102 can be installed on each side (upper side or under side) of the circuit board 10 respectively, or both on the same side of the circuit board 10. Fig. 7 shows only one of the schemes.

Since the flash memory 101, the CPU 102 and the time-control are all installed on the circuit board 10, the integrated wristwatch has a more compact internal structure and a smaller volume.

Claims

What is claimed is:

1. A wristwatch capable of storing and transmitting data comprises:
 - a timing indicating component;
 - a watch case (1); and
 - a watch band (2) for fixing the wristwatch to people's wrist,
 characterized in that, said wristwatch further comprises a circuit board assembly, a USB connector and a connection cable; said circuit board assembly is installed inside the watch case (1) and comprises a circuit board (10), on which are installed a Flash Memory (101) and a CPU (102); said connection cable (3) consists of data leads and power leads, which are used to connect with the circuit board (10) and the USB connector (4), the USB connector (4) is located outside the watch case (1), said connection cable (3) extends out of the watch case (1) from an opening hole at the seam between the watch case (1) and the watch band (2), a water proof means is provided around the opening hole; a housing means for housing and fixing the connection cable (3) and the USB connector (4) is provided on said watch band (2).
2. A wristwatch according to claim 1, characterized in that, said water proof means comprises a water proof gasket (8), a sheeting (7) and a step structure of the watch case (1).
3. A wristwatch according to claim 2, characterized in that, said step structure of the watch case consists of an inner step 1A and an outer step 1B; said water proof gasket (8) is installed at

the step 1A, said sheeting (7) is pressed to the step 1B and is fused with the watch case (1); the internal diameter of the water proof gasket (8) is smaller than the external diameter of the connection cable (3) after the water proof gasket (8) is pressed and deformed.

4. A wristwatch according to claim 2 or 3, characterized in that, said water proof gasket (8) is in the shape of a circular ring, said sheeting (7) is in the shape of a circular ring; said connection cable (3) passes through an opening hole (12) of said watch case (1), said sheeting (7) and said water proof gasket (8) in turn, extends inside the wristwatch and is connected to the circuit board (10).

5. A wristwatch according to claim 1, characterized in that, said watch band (2) includes two sections 2A and 2B; said section 2A is undercutting according to the outline of the connection cable (3) and the USB connector (4), so as to form a big through hole; said through hole is divided into two segments, wherein, the longer segment (21) is made to house and lock the connection cable (3), the shorter segment (22) is formed to lodge the USB connector (4), so that the outside part of the connection cable (3) and the USB connector (4) are beset in the section 2A of the watch band.

6. A wristwatch according to claim 5, characterized in that, a tongue like positioning piece (23) is installed at the outside end of shorter segment (22) of the section 2A of said watch band, so that said positioning piece (23) extends into said USB connector (4) and locks it in position.

7. A wristwatch according to claim 5, characterized in that, on section 2A of said watch band, a rib (24) is installed for linking the two segments of the section 2A and securing the USB connector (4).

8. A wristwatch according to claim 5, characterized in that, said wristwatch further includes a loop (5), which is designed to fit the size of the USB connector (4), and can be slid along the section 2A of the watch band; several small pieces of projections (25) are provided on both sides of said watch band (2) at the shorter segment (22), and correspondingly several small concaves are provided on the inner surface of the loop (5), when the small projections (25) are engaged with the small concaves, the loop (5) can be positioned precisely so as to clamp the USB connector (4) in the groove of the shorter segment (22).

9. A wristwatch according to any one of claims 1, 5, 6, 7, or 8, characterized in that, said housing means for housing and fixing the connection cable (3) and the USB connector (4) comprises the longer segment (21), the shorter segment (22), the loop (5), and further comprises the positioning piece (23), the rib (24), small pieces of projections (25) and concaves located on inner surface of the loop (5).

10. A wristwatch according to claim 1, characterized in that, said timing indicating component and said circuit board assembly are installed inside the watch case (1), said case back (11) is located on the rearmost position, touching with people's wrist, and making an airtight effect for the wristwatch.

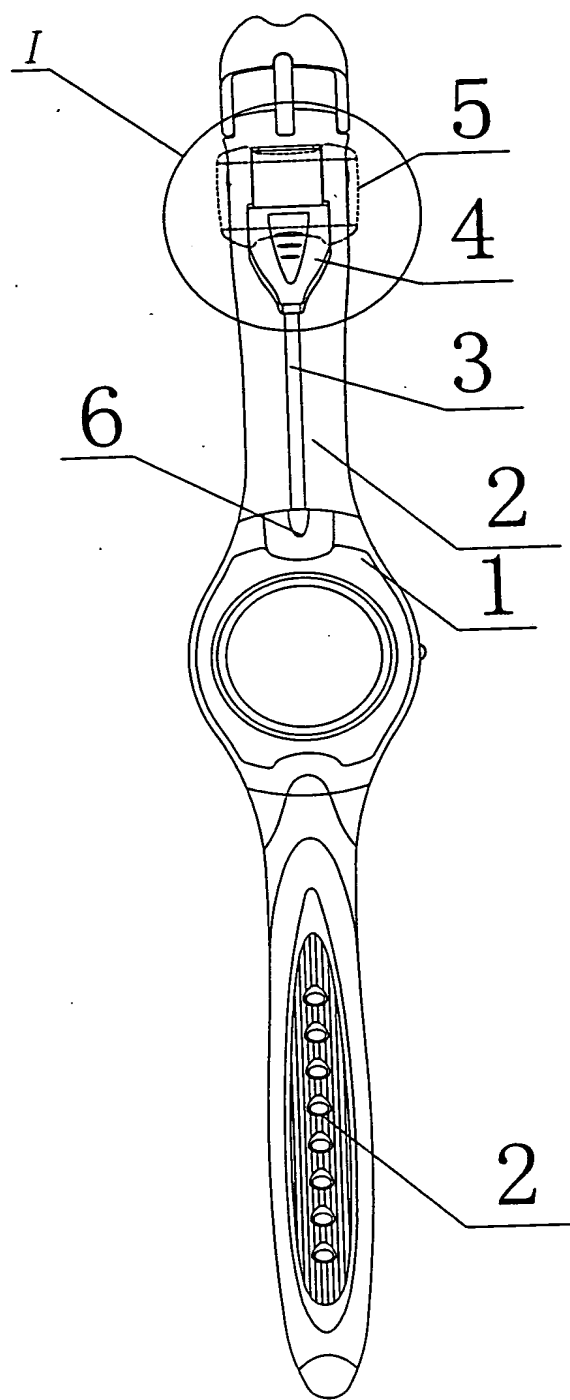


FIG. 1a

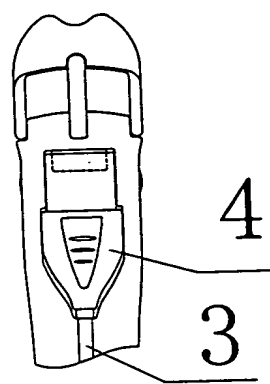


FIG. 1b

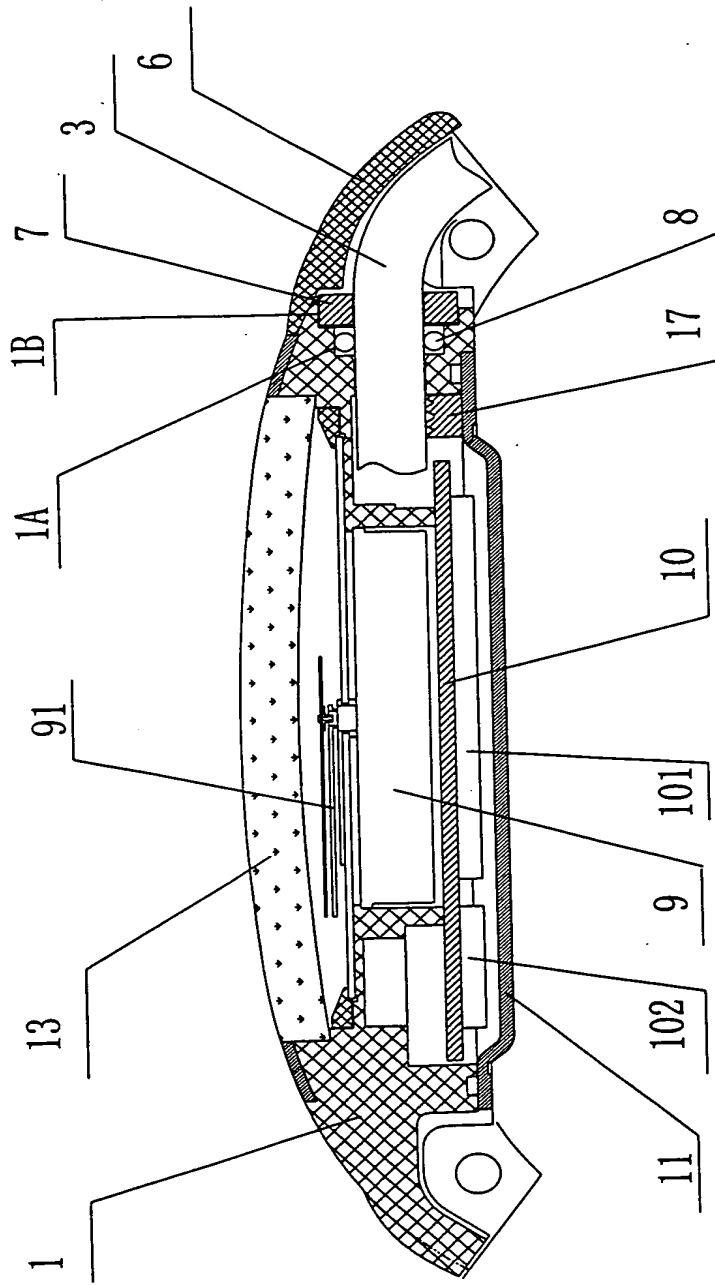


FIG. 2

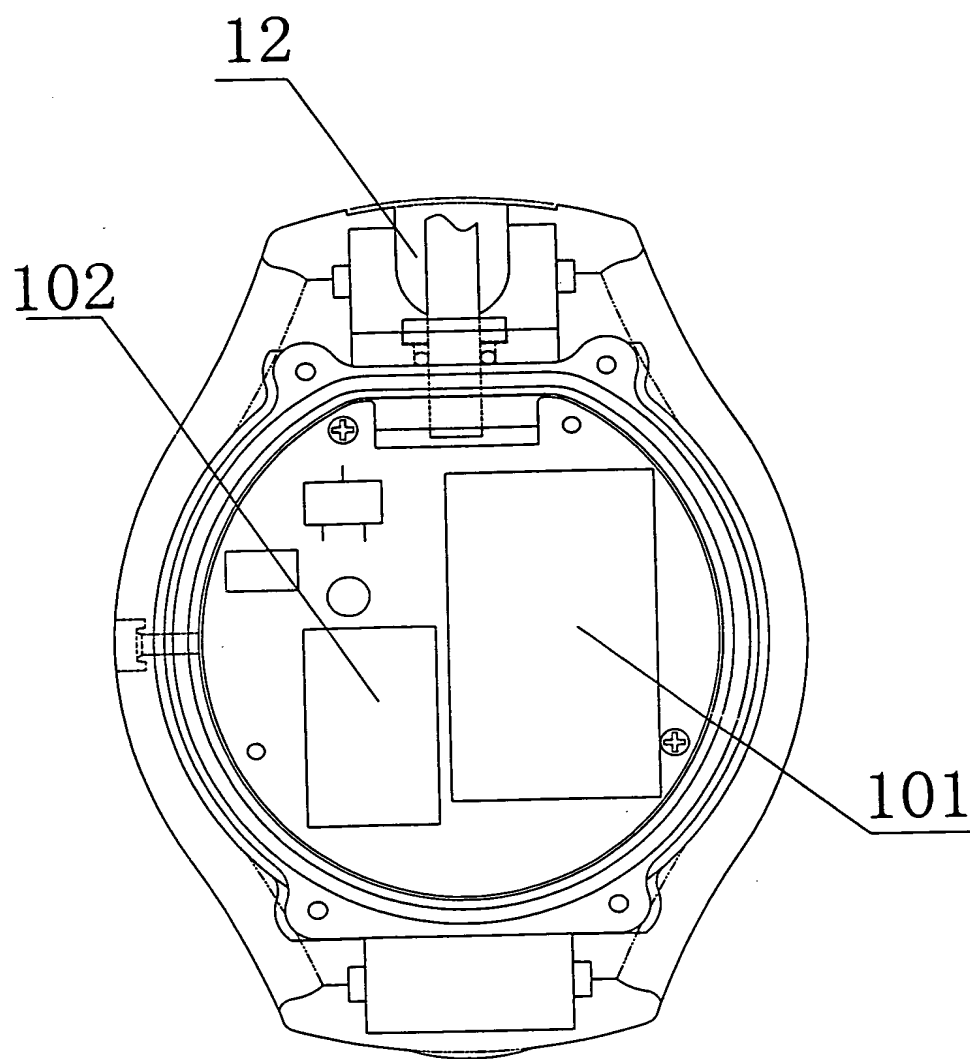


FIG. 3

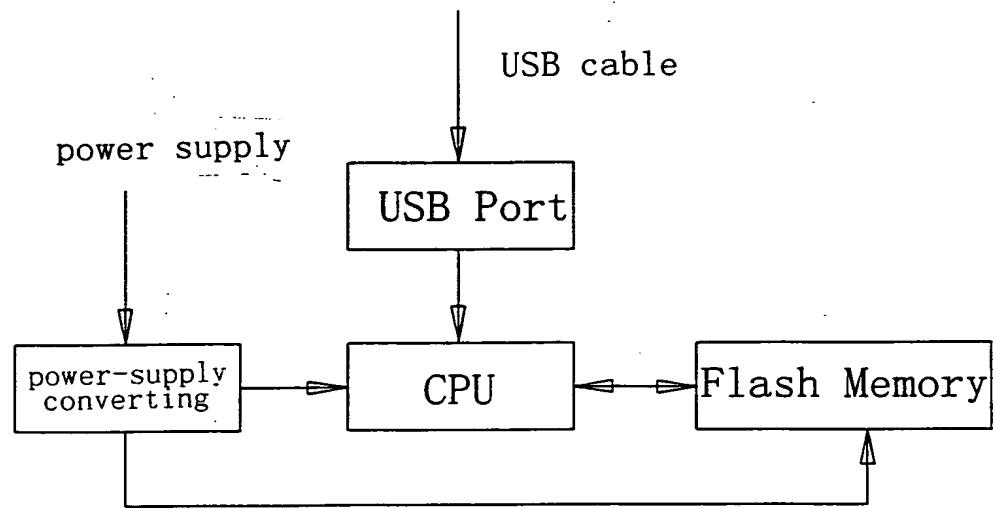


FIG. 4

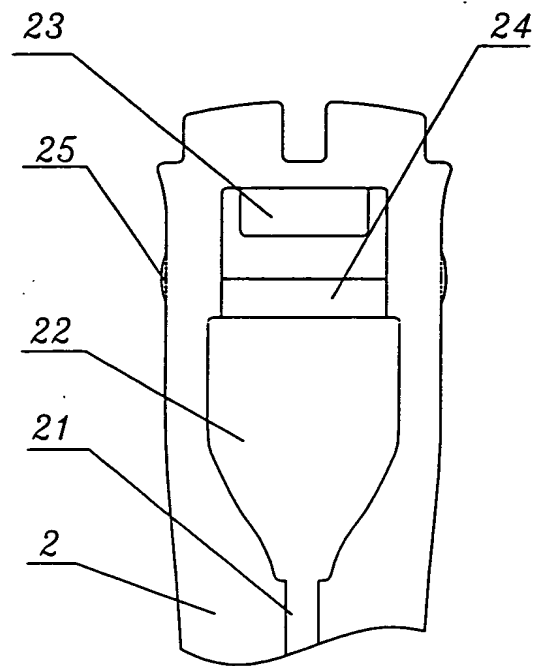


FIG. 5

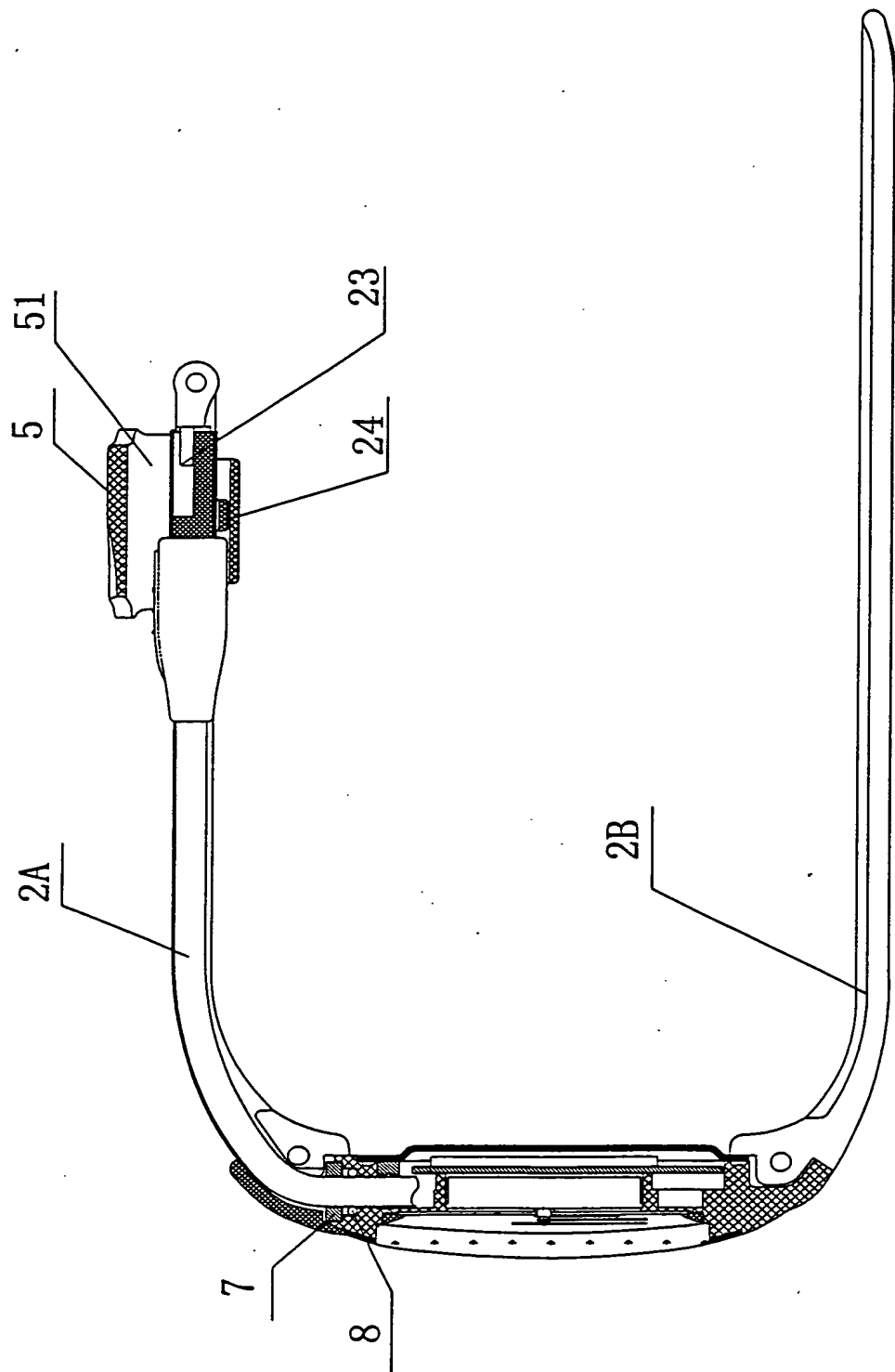


FIG. 6

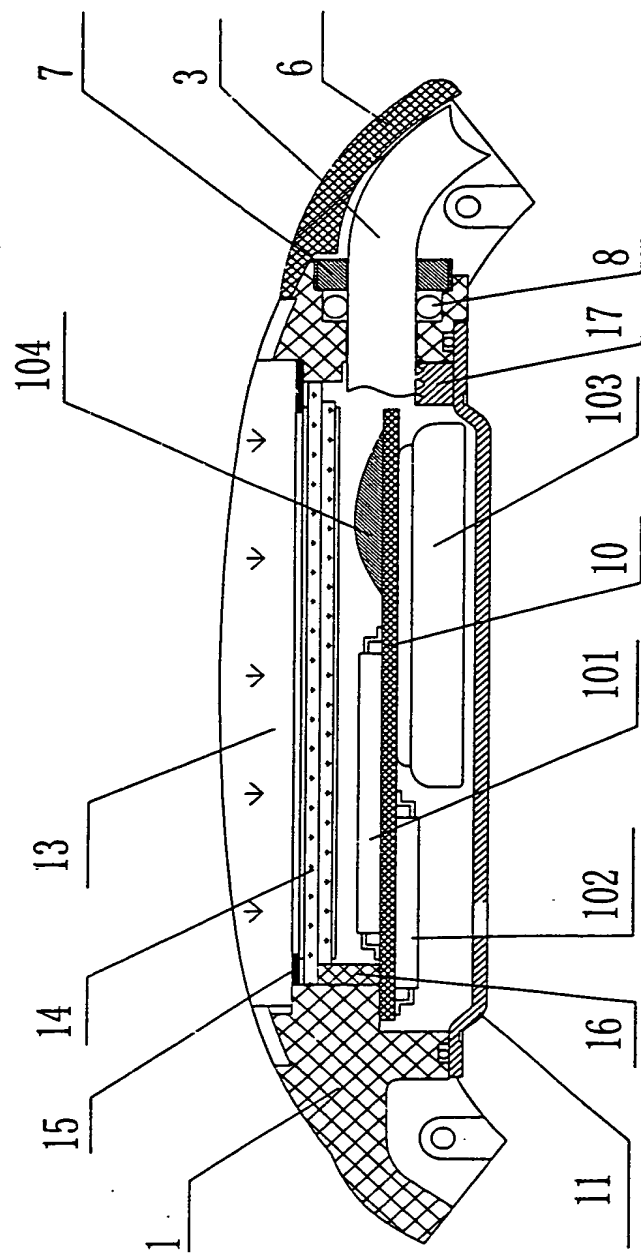


FIG. 7



证 明

本证明之附件是向本局提交的下列专利申请副本

申 请 日： 2002 12 17


申 请 号： 02 2 93251.8

申 请 类 别： 实用新型

发明创造名称： 可存储及传输数据的手表

申 请 人： 珠海精准表业有限公司

发明人或设计人：陈笠



中华人民共和国
国家知识产权局局长

王景川

2003 年 7 月 16 日

权利要求书

1、一种可存储及传输数据的手表，包括：时间指示部件、表壳（1）及用来将手表固定在人们的手腕上的表带（2），其特征在于：所述手表还包括电路板组件、一 USB 接口部件及一导线；所述电路板组件安装于手表表壳（1）内部，其包括一电路板（10）及安装在该电路板（10）上的一快闪存储器（101）和一 CPU（102）；所述导线（3）用于连接电路板（10）和 USB 接口部件（4），其包括数据线和电源线；USB 接口部件（4）位于表壳（1）外，所述导线（3）从表壳（1）与表带（2）的衔接处的缺口伸出表壳（1）外，所述缺口周围，设置有防水装置；在所述的表带（2）上，设置有导线（3）及 USB 接口部件（4）的安装固定装置。

2、根据权利要求 1 所述的一种可存储及传输数据的手表，其特征在于：所述防水装置包括防水圈（8）、压片（7）和表壳（1）的阶梯状截面。

3、根据权利要求 2 所述的一种可存储及传输数据的手表，其特征在于：所述表壳（1）的阶梯状截面包括台阶（1A）和台阶（1B）；防水圈（8）放置在台阶（1A）处，压片（7）压入台阶（1B）处，压片（7）和表壳（1）为一体；防水圈（8）产生变形后内径小于导线（3）的线径。

4、根据权利要求 2 或 3 所述的一种可存储及传输数据的手表，其特征在于：所述防水圈（8）为圆环形，压片（7）为圆环状；导线（3）依次穿过表壳（1）的缺口（12）、压片（7）、防水圈（8），伸入表体的内部，再接到电路板（10）上。

5、根据权利要求 1 所述的一种可存储及传输数据的手表，其特征在于：表带（2）包括（2A）、（2B）两段；表带（2A）段按照导线（3）和 USB 接口部件（4）的外形掏空，形成一个大通孔，所述大通孔分为两段，小段凹槽（21）用来容纳导线（3），大段凹槽（22）用来容纳 USB 接口部件（4）；导线（3）和 USB 接口部件（4）在表体外的部分镶嵌在表带（2A）段里。

6、根据权利要求 5 所述的一种可存储及传输数据的手表，其特征在于：在表带（2A）段的靠近大段凹槽（22）外端处，设置了舌状的定位块（23），定位块（23）伸进 USB 接口（4）将其卡住。

7、根据权利要求 5 所述的一种可存储及传输数据的手表，其特征在于：表带（2A）段还设置了用来连接表带（2A）段被分开的两部分的加强筋（24），所述加强筋（24）支撑 USB 接口部件（4）。

8、根据权利要求 5 所述的一种可存储及传输数据的手表，其特征在于：所述手表还包括可在表带（2A）段上滑动的束环（5），所述束环（5）规格及尺寸大小能恰好紧紧地套住 USB 接口（4）；凹槽（22）位置处的表带（2）两侧边设置有若干小突块（25），束环（5）

6
内侧边相应地设置了若干小凹坑，束环（5）通过小突块（25）刚好卡入小凹坑精确定位，凹槽（22）内的 USB 接口部件（4）随之固定。

9、根据权利要求 1、5、6、7 或 8 中任何一项所述的一种可存储及传输数据的手表，其特征在于：所述导线（3）及 USB 接口部件（4）的安装固定装置包括小段凹槽（21）、大段凹槽（22）、束环（5），进一步包括定位块（23）、加强筋（24）、小突块（25）及束环（5）内侧边的小凹坑。

10、根据权利要求 1 所述的一种可存储及传输数据的手表，其特征在于：所述时间指示部件及电路板组件安装在表壳（1）内部，所述后盖（11）位于手表体的最后部，与人的手腕相接触，起到密闭的作用。

说明书

可存储及传输数据的手表

技术领域

本实用新型涉及一种手表，特别是一种可存储及传输计算机数据的手表。

背景技术

手表，作为一种计时工具，一直是人们日常工作和生活中的随身携带的必备物品。手表通常包括：一时间指示部件，为手表的核心部件，用来运转指示时间值；一表壳，用来安装和保护时间指示部件；一表带，用来将手表固定在人们的手腕上，并起到装饰手腕的作用。随着科技的进步，人们充分利用了手表具有便于携带的优点，在手表上设置其他装置，如：名称为“机体内装有 SIM 卡的电话手表”，申请号为“01104642.2”的专利申请，公开了一种和通讯技术相结合的手表。但是，随着计算机技术的普及和不断发展，至今还没有发现和计算机技术相结合的便于携带的手表。同时，由于计算机数据交换的需要，市场上出现了各种移动存储设备，如移动硬盘、具有 USB 接口的便携式存储产品等。使用这些产品，可实现计算机与计算机之间的数据交换，如将一台计算机的数据迅速存储在具有 USB 接口的便携式存储产品中，然后再应用该产品将这些数据传输给另一台计算机，即可完成数据交换。该产品一般具有快闪存储器（Flash Memory），所以存储速度很快、数据保存时间也长，如某些快闪存储器可以保存数据十年以上。但是，移动硬盘携带起来极不方便，而市场已有的具有 USB 接口的便携式存储产品在使用的时候，都要通过一根长长的导通线（一端连接该产品的 USB 接口，另一端连接计算机的 USB 接口）来连接该产品和计算机。消费者需要经常地携带一根导通线，使用起来相当不方便，如果不慎将导通线丢失，数据传输及存储成为不可能。而且，为了随时可以进行数据闪存和交换，消费者需要专门地携带该产品。因此，消费者迫切需要一种能与日常用品相统一的便携式存储产品，这样就无需专门地携带一个单独的 USB 产品。

实用新型的内容

本实用新型的目的在于，提供一种便于携带的手表，可迅速地存储和传输计算机数据，手表表壳内部的结构密封良好，内部元器件的电气性能可充分保障，并且存储和传输计算机数据的装置得以很好地固定和保护，外观仍然具有简洁大方的效果。

本实用新型的目的在于通过以下技术方案实现的：一种可存储及传输数据的手表，包括：

时间指示部件，表壳及用来将手表固定在人们的手腕上的表带，所述手表还包括电路板组件，一 USB 接口部件及一导线；所述电路板组件安装于手表表壳内部，其包括一电路板及安装在该电路板上的一快闪存储器和一 CPU；所述导线用于连接电路板和 USB 接口部件，其包括数据线和电源线；USB 接口部件位于表壳外，所述导线从表壳与表带的衔接处的缺口伸出表壳外，所述缺口周围，设置有防水装置；在所述的表带上，设置有导线及 USB 接口部件的安装固定装置。

本实用新型的优点在于：手表内置有快闪存储器，所以它除了提供传统手表的计时等功能之外，还可以随时随地、迅速地与计算机进行数据交换、传送和存储。由于 CPU、快闪存储器均内置于手表表壳之内，所以该手表在体积、重量等方面与传统手表无明显差别，因而仍然便于携带和使用。表带上设置有 USB 接口部件的安装固定装置，USB 导线及 USB 接口并不外露，因而不会给消费者的携带或佩戴带来不便。如此，消费者可以拥有一种具崭新功能的手表，同时可以十分方便地传输和存储计算机内的数据，而无需专门携带一个单独的存储装置或移动硬盘，也无需专门携带有关导通线。而手表作为一种计时产品，深受消费者的喜爱。特别是对一些具有新功能的手表，尤其受到市场的青睐。所以，如果出现一种可利用作数据存储、传送的手表，必定为国内外市场提供一种全新的选择，且为现代社会的信息交流、交换带来最大的便利。

附图说明

- 图 1a 是本实用新型一种可存储及传输数据的手表实施例一的整体示意图；
图 1b 是本实用新型一种可存储及传输数据的手表实施例一的 I 局部示意图；
图 2 是本实用新型一种可存储及传输数据的手表实施例一的表体的剖视图；
图 3 是本实用新型一种可存储及传输数据的手表实施例一去除手表后盖后的示意图；
图 4 是本实用新型一种可存储及传输数据的手表实施例一的电路原理图；
图 5 是本实用新型一种可存储及传输数据的手表的表带结构示意图；
图 6 是本实用新型一种可存储及传输数据的手表实施例一的 USB 接口安装示意图；
图 7 是本实用新型一种可存储及传输数据的手表实施例三的表体的剖视图。

具体实施方式

现在结合附图及实施例对本实用新型作进一步的描述。

实施例一：

如图 1a、1b 所示，本实用新型的手表包括：一时间指示部件，用来运行指示时间值；一表壳 1，用来安装和保护手表内部结构；一表带 2，用来将手表固定在人们的手腕上，并起到装饰手腕的作用；所述手表还包括一快闪存储器（Flash Memory）及一 CPU，可用于存

储及传输数据。所述表带 2 可以采用各种材料制成，优选地，为塑料表带。

如图 1a、1b、2、3 所示，所述时间指示部件及电路板组件安装在表壳 1 内部，时间指示部件包括机芯 9、表针 91 及时间刻度盘等部件。所述机芯 9 位于表针 91 及时间刻度盘的后部；所述电路板组件包括电路板（PCB）10、快闪存储器 101、CPU102。电路板 10 安装在机芯 9 和后盖 11 之间。所述后盖 11 位于手表体的最后部，与人的手腕相接触，起到密闭的作用。

USB 接口部件 4 位于表带 2 内，导线 3 用于连接电路板 10 和 USB 接口部件 4，导线 3 为一种四芯线，其中两根为数据线，另外两根为电源线。其电气原理如图 4 所示：

快闪存储器电路包括微处理器（CPU）、快闪存储器（Flash Memory）、电源转换电路和数据通讯口（USB PORT）。当 USB 接口接通计算机时，计算机即可提供电源，输入至电源转换电路，从而供给微处理器（CPU）和存储器（Flash Memory）；微处理器（CPU）用来控制数据处理、读取、存储和交换；快闪存储器（Flash Memory）用来存储数据；数据通讯口（USB PORT）为快闪存储器跟计算机交换数据的接口，在微处理器（CPU）的控制指令作用下，快闪存储器（Flash Memory）的数据可通过数据通讯口（USB PORT）跟计算机进行交换，从而实现数据的读取、存储和交换。

由于快闪存储器电路具有高度集成化的特性，USB 接口部件 4 和导线 3 均安装在表体外，因此，本实用新型的表体和普通手表的表体相比，其体积几乎没有增加，手表仍然可以做得小巧精致。

如图 1a、1b、2、3 所示，表壳 1 设置有缺口 12，导线 3 一端连接电路板 10，另一端穿过缺口 12 位于表体外，缺口 12 宽于导线 3 的线径，为了美观，在导线 3 的上方设置了线盖 6，用来将缺口 12 盖住。

为了保证表体中的电子元件能保持干燥，导线 3 伸出表体的部位一定要具有很好的防水性能。其装配和操作步骤如下：

从图 2 中可以看到，导线 3 的出口处，表壳 1 的截面为阶梯状，先将防水圈 8 放置在内侧的台阶 1A 处，所述防水圈 8 为圆环形，防水圈 8 采用易变形的材料制成，如：橡胶、塑料等；再将圆环状的压片 7 压入台阶 1B 处，压片 7 可采用和表壳 1 相同的材料，如：工程塑料等；然后通过超声波的作用，将压片 7 和表壳 1 融合，压片 7 即可将导线 3 的出口周围盖紧；同时，在超声波融合的过程中，防水圈 8 产生变形，其内径变得小于导线 3 的线径；将导线 3 依次穿过缺口 12、压片 7、防水圈 8，伸入表体的内部，再接到电路板 10 上。在表体的内部，设置有压板 17 将导线 3 固定好，使导线 3 的定位更可靠。

如图 5、6 所示，表带 2 包括 2A、2B 两段，所述表带 2A 段为了配合导线 3 和 USB 接口部件 4 的固定，并为了携带方便雅观，作了如下改进：将表带 2A 段按照导线 3 和 USB 接口部件 4 的外形掏空，形成一个大通孔，所述大通孔分为两段，小段凹槽 21 以能紧紧卡住导

线 3 为准, 用来容纳导线 3, 大段凹槽 22 用来容纳 USB 接口部件 4, 这样, 导线 3 和 USB 接口部件 4 在表体外的部分镶嵌在表带 2A 段里。为了进一步固定 USB 接口部件 4, 在表带 2A 段的靠近大段凹槽 22 外端处, 设置了舌状的定位块 23, 当 USB 接口部件 4 安装在大段凹槽 22 内时, 定位块 23 伸进 USB 接口, 将其卡住, 这样 USB 接口不会随意晃动。表带 2A 段还设置了加强筋 24, 用来连接表带 2A 段被分开的两部分, 并且支撑 USB 接口部件 4, 使表带 2A 段不易损坏, 且 USB 接口进一步固定。所述表带 2 的材料为 PU 料。

本实用新型的手表还包括束环 5, 所述束环 5 规格及尺寸大小以能恰好紧紧地套住 USB 接口 4, 所述束环 5 可在表带 2 上滑动; 在凹槽 22 位置处的表带 2 两侧边提供若干小突块 25, 束环 5 内侧边相应地设置了若干小凹坑, 当小突块 25 刚好卡入小凹坑时, 束环 5 得以精确定位, 以卡住藏在凹槽 22 内的 USB 接口部件 4。所述导线 3 及 USB 接口部件 4 的安装固定装置包括小段凹槽 21、大段凹槽 22 及束环 5, 还可以进一步包括定位块 23、加强筋 24、小突块 25 及束环 5 内侧边的小凹坑。在需要与计算机进行数据传送或存储时, 将束环 5 滑出小突块 25 的控制移至表带 2 的其它位置, USB 接口 4 能摆脱上述束环 5 的卡锁, 与 USB 导线 3 一起, 从表带 2 中取出, 与计算机连接, 将 USB 接口 4 插接在计算机的相应 USB 接口中, 在计算机上进行相应的操作就可以快速地将计算机存储的有关资料、档案、信息等数据复制下载至快闪存储器 101。复制、下载、存储、传输的程式都由 CPU102 控制完成。

当数据存储完毕后, 把 USB 接口部件 4 从计算机的相应 USB 接口抽出, 再将 USB 导线 3 压进凹槽 21, USB 接口 4 放进凹槽 22, 该束环 5 包裹住 USB 接口 4, 如此能避免手表佩戴者在运动等情形下损坏 USB 导线及 USB 接口。所述束环 5 采用相对于表带 2 来说, 更硬一些的材料, 如: ABS、PC 塑料, 使其更符合功能的要求。

如图 6 所示, 束环 5 内腔的上部, 为一个空腔 51, 当人们将手表套到手腕上时, 表带 2 的 2B 段的尾端可插入空腔 51 内, 可起到调节表松紧的作用。

由于 CPU、快闪存储器、USB 四芯线、USB 接口可以使用市场已有标准件, 也可以向有关供应商订做特定规格, 以使它们更容易地安装在表壳内, 因此本实用新型的实用性非常强。另外, USB 四芯线从表壳与表带的衔接处伸出, 衔接处的间隙使用了密封圈(防水圈)及压片结构, 从而保护表壳内的 CPU、快闪存储器及相应电路以及手表的其他内置于表壳的零部件, 这样可以具有更好地保障防水、防潮等性能。尤其是, 本实施例中的手表可以是塑胶手表, 其表壳或表带使用工程塑料(ABS), 此 ABS 材料绝缘性能极佳, 因而可以保障本实用新型手表的电气性能, 使 CPU 及快闪存储器的数据存储或传输工作不会出错。这样, 本实用新型在现有手表的基础上, 将 USB 快闪存储装置安装在手表内, 在向消费者提供一种计时产品的同时, 也提供了一种携带及使用、保管起来特别方便而且存储速度极快的数据传输及存储产品。如此将比仅仅佩戴一个手表, 但更加实用, 也比另外携带一个单独的外置硬盘或现有便携式存储产品更加方便、有利。

实施例二：

实施例二和实施例一的不同之处在于，实施例二的表壳 1 及压片 7 均采用金属材料制成，表带 2 可以使用金属材料，也可以使用塑料材料，金属表壳 1 和表带 2 的结构与实施例一的相应部件的结构类似，但 USB 四芯线从表壳与表带的衔接处伸出，衔接处的间隙使用的密封结构与实施例不同：实施例二仍采用橡胶、塑料等材料制成的防水圈 8，但由于压片 7、表壳 1 为金属材料，因此在表壳 1 的台阶 1B 处，设置了内螺纹，在压片 7 外周，相应设置了外螺纹。当将压片 7 装入表壳 1 时，旋转压片 7，即可以通过螺纹的配合方式与表壳 1 固定成一体，从而也将防水圈 8 压缩变形，起到密封的作用。

实施例三：

实施例三所涉及的是一种以 LCD（液晶显示屏）显示时间的手表（数字表），它的时间指示部件结构和实施例一的指针式手表的不同，从而整个时间指示部件的结构排布也有区别。LCD 显示手表的 IC 装在电路板上，与 LCD 液晶屏一起组成时间指示部件。因此，手表的电路板和快闪存储器的电路板可以一体化设计。相对于实施例一来说，实施例三的电路板组件除了包括快闪存储器及 CPU 外，还进一步包括一走时 IC，用来控制 LCD 指示时间值。

如图 7 所示，是数字表的示意图。其有表壳 1，铭板 15，液晶屏 14，面板 13；走时 IC104，压片 7，导线 3，线盖 6，防水圈 8，压板 17，电池 103，电路板 10，快闪存储器 101，CPU102，导电胶 16，后盖 11。

所述时间指示部件包括：电池 103，电路板 10，走时 IC104、液晶屏 14、铭板 15 等部分。

快闪存储器 101 和 CPU102 可以分别分布在电路板 10 的上面及下面，或者都分布在电路板 10 的上面，或者都分布在它的下面。图 7 只是其中一种方案。

由于快闪存储器 101、CPU102 和走时 IC104 都安装于电路板 10 上，电路板一体化设计的手表，其内部排布更紧凑，体积可以更小。

说明书附图

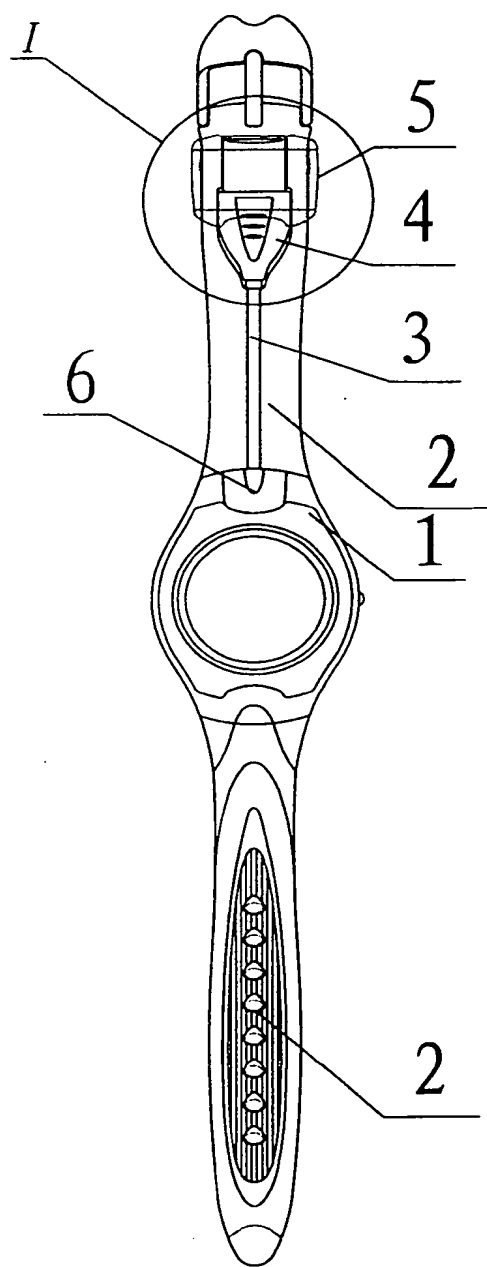


图 1a

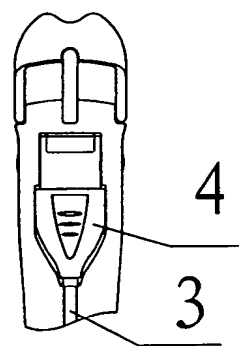


图 1b

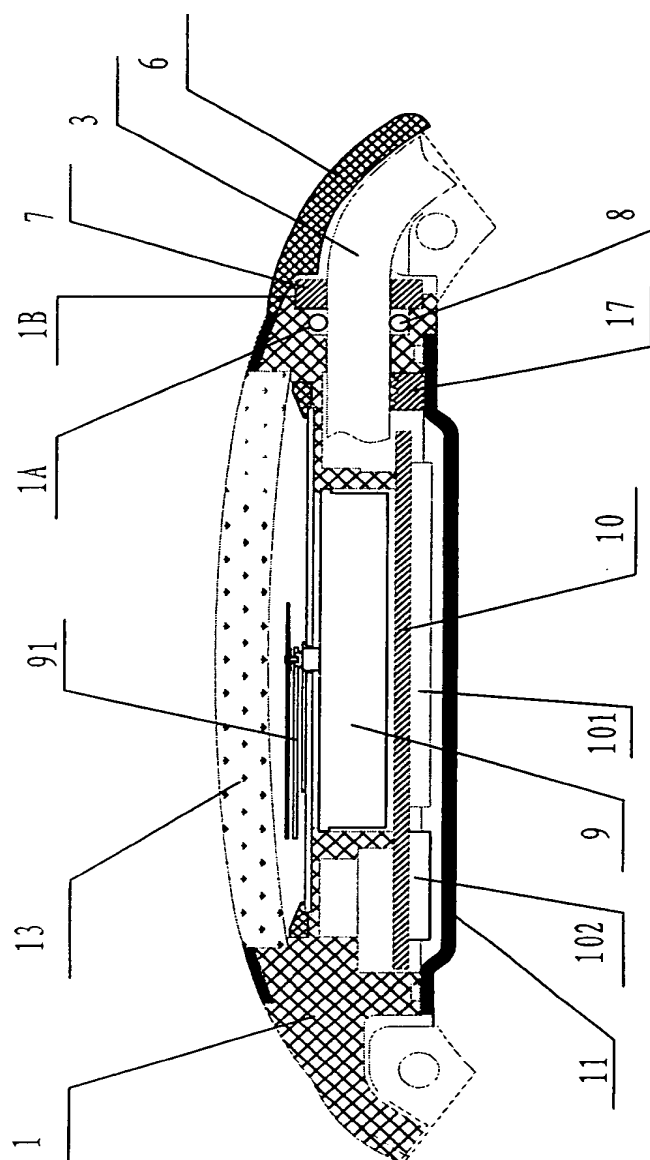


图 2

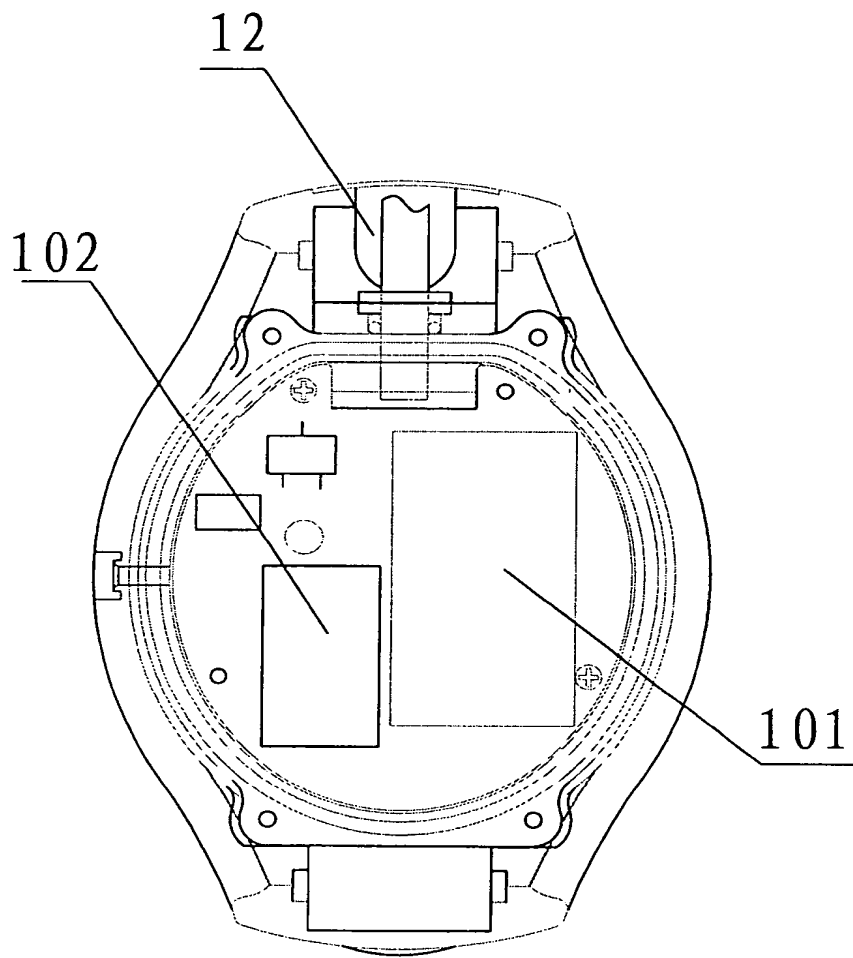


图 3

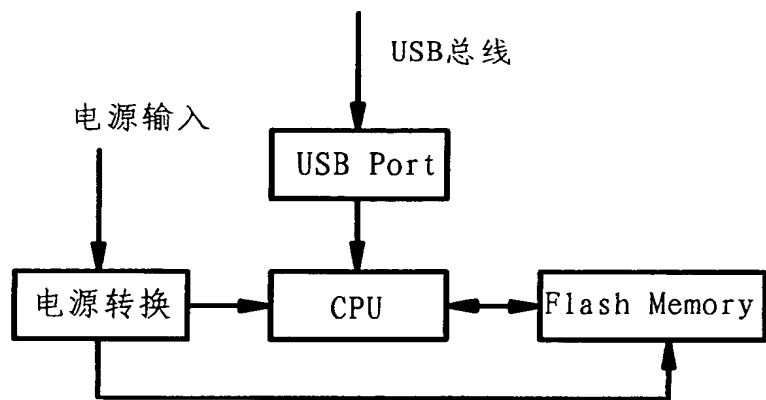


图 4

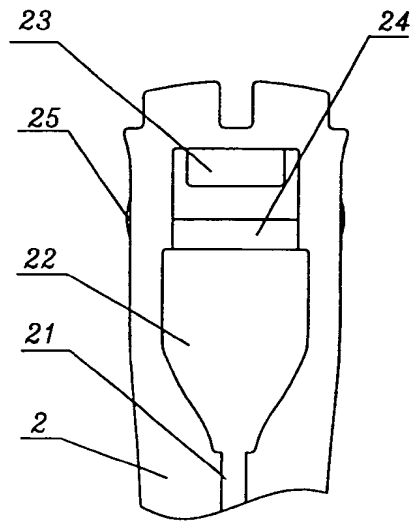


图 5

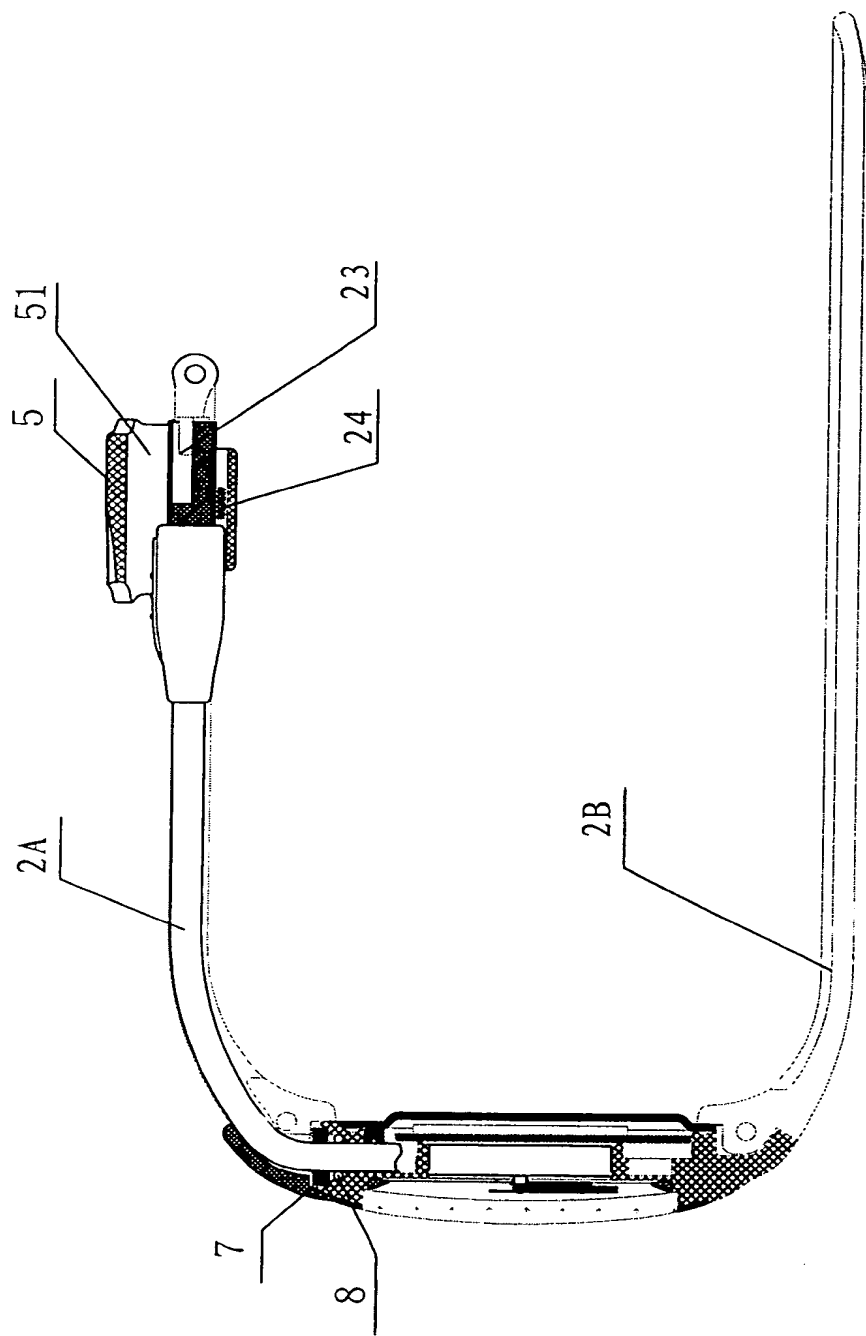


图 6

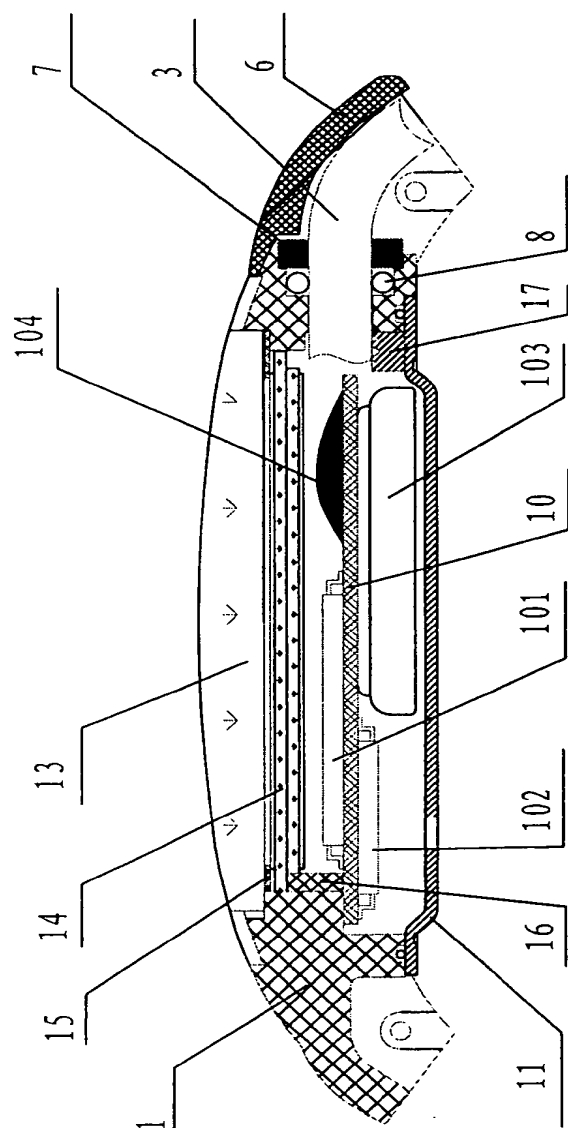


图7